

Ethnological Sciences at Vienna in 1952, Dr. Cipriani explained the derivation of '*Sus andamanensis*' thus: 'In the Nicobars, male pigs were invariably castrated in order to fatten them. Male and female pigs roam free in the jungle in daytime, but are called back to the house by special sounds in the evening. Females are fecundated by wild males. There can be little doubt that the wild pigs of the Nicobars are descendants from young animals which, before being castrated, did not obey to the evening calls of their owners and thus became feral. Similarly, *Sus andamanensis*, of late appearance in the kitchen-middens, would seem to be derived from a semi-domesticated breed.' Bearing these observations in mind, it seems possible that there is a gradation of intermediate forms between the local wild pig and the domestic pig, and this accounts for the difficulty which Dr. Cipriani feels in separating the short-snouted form into two varieties.

Material is required to clear up the doubts enumerated in this note and I would request sportsmen and other persons who are in a position to help to send to the Society's Offices specimens of different varieties of the wild pigs of the Andaman Islands, together with notes as to their appearance, size, weight, habits, etc.

BOMBAY NATURAL HISTORY SOCIETY,

91, WALKESHWAR ROAD,

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## 2. TRANSMISSION OF RABIES WITHOUT BITING

In October 1961 Y. S. Shivraj Kumar of Jasdan drew our attention to a report in an American journal about the transmission of rabies by bats without the victims being bitten. We thereupon made inquiries and, as the subject is important and of general interest, we publish the information so far obtained.

The new feature about the association of bats with the transmission of rabies is the probability that rabies may be transmitted without the victims being bitten. Regarding this, with the kind permission of Dr. Ernest S. Tierkel, Chief of the United States Public Health Service Rabies Programme, we reproduce below an extract from a report presented by him before the recently concluded

Interprofessional Seminar, University of Missouri Medical Centre, Columbia, Missouri:

'It had been noted previously that two individuals died of rabies after having been in Frio Cave, a large limestone bat cave in Southern Texas. Before their death, both men denied knowledge of being bitten by bats or other mammals, suggesting the possibility of a non-bite route of rabies transmission, at least under the environmental conditions existing in Frio Cave.

'In July 1961 a large group of animals were placed in a part of Frio Cave occupied by suckling and lactating female bats. They were held in the cave for approximately one month. The animals were placed in four different types of cages, each differing in the protection afforded against cave fauna. Cage type I was made of escape-proof 2.5 cm. metal mesh; type II had the same plus an additional cover of 6 mm. wire mesh to prevent contact with bats or other cave animals; type III was similarly enclosed and covered with 1.4 mm. plastic mesh in place of the 6 mm. wire mesh to prevent entrance of arthropods; Type IV was covered and sealed with transparent plastic, except at each end which was covered with 1 mm. dacron mesh plus the 1.4 mm. plastic mesh. The caged animals were separated from the meshed-in ends by a 'moat' of glycerine soaked spun-glass padding to insure against even the tiniest arthropods such as bat mites from entering the animal cages within the enclosure.

'A variety of carnivores including coyotes, foxes, dogs, cats, skunks, racoons, ringtails and opossums were used. Foxes and coyotes were distributed in each of the four types of cages. To date, all of the coyotes (10) in each of the four types of cages and all the foxes (10) in cage types I, II and IV died of rabies. Rabies virus was isolated from each animal and identified by serum-neutralization tests. The animals in the test had been caged in isolation for a quarantine period of 10 to 20 months before placing them in the cave. Exceptions were one coyote in cage type I and one fox in cage type IV, which were held four months previous to cave test. Two of the animals in the experiment (cage type II) were silver foxes and had been born in captivity three years previously.' Negative results for the presence of serum-neutralizing antibody were obtained on all test animals previous to the study.'

According to the Virus Centre at Poona besides in vampire bats (*Desmodus* spp.), there is evidence of rabies in the following genera of bats:

*Tadarida*, *Dasypterus*, *Lasiurus*, *Molossus*, *Myotis*, *Artibeus*<sup>1</sup>, *Uroderma*<sup>1</sup>.

Of these only representatives of the genera *Tadarida* and *Myotis* occur in India.

The only case of rabies associated with a bat in India is reported in the Annual Scientific Report of the Pasteur Institute, South India, for the year 1955, as follows:

'Bat Rabies—(N. Veeraghavan). It has been reported that the first case of Hydrophobia following bite by an insectivorous bat occurred in Srikakulam District of the Andhra State.

'With the co-operation of Major T. Joga Rao, Civil Assistant Surgeon, Tekkali, and Dr. Bh. Janakiramayya, Veterinary Assistant Surgeon, Tekkali, bats were shot in the area where the patient was bitten and examined for the occurrence of natural rabies infection among the bat population. So far, 12 bats have been examined. Negri bodies and the virus were not demonstrable in the brains of the bats.'

Unfortunately, the Director of the Pasteur Institute has no record of the species of the bat responsible for the bite or of the 12 bats examined.

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EDITORS

### 3. UNUSUAL PLUMAGE OF THE LITTLE CORMORANT [*PHALACROCORAX NIGER* (VIEILLOT)]

In the bird collection of the late Charles M. Inglis, the bulk of which is now housed in the Yale Peabody Museum, there is a male Little or Pygmy Cormorant, *Phalacrocorax niger* (Vieillot) which deserves mention. It was collected on 25 February 1935 on the Kamla River, Darbhanga District, Bihar. This appears to be an adult bird in winter plumage, with a white throat and lacking filamentous feathers about the head, but the whole plumage has a silvery-grey tone. Only the top of the head and round the neck are somewhat brownish. For the rest the bird is silvery-grey, paler below especially on the abdomen, many of the feathers, both of the back, primaries, and

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<sup>1</sup> These are both frugivorous.